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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,387	06/29/2006	Brian Gordon Stewart	031749/297914	1924
826 7590 11/09/2009 ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			EXAMINER PATEL, DHAAVAL V	
			ART UNIT 2611	PAPER NUMBER
			MAIL DATE 11/09/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/549,387

Applicant(s)

STEWART, BRIAN GORDON

Examiner

DHAVAL PATEL

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 58-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 58-61, 63, 64 and 69-74 is/are rejected.
- 7) ☒ Claim(s) 62 and 65-68 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Drawings

2. **Figures 1-5** should be designated by a legend such as --**Prior Art**-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 74 is rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter.

In claim 74, claim recites "a computer program, preferably on a data carrier" here, the computer readable medium is a data carrier and carrier is "signal" per se and signal is a non statutory subject matter.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 74 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 74 recites "a computer program, preferably on a data carrier or a computer readable medium having a code or instructions for carrying out the method of claim 58" however, this claim limitation is not supported by the specification anywhere.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. **Claims 58-60, 63, 64, 69, 70 and 73 are rejected under 35 U.S.C. 102(a) as being anticipated by Schaefer et al. (WO02/078280) (see corresponding patent US 7,339,882 for translation purpose).**

Regarding claim 58, Schaefer discloses a method for encoding data for transmission over a telecommunications network comprising (col. 1 lines 30-33, OFDM transmission scheme) embedding a control data block within a plurality of real data blocks (Fig. 3, blocks 23 and 24, build OFDM symbol with adding pilots with phase profile and add data, col. 3 lines 40-42, data and pilots are added together); convoluting real data in each real data block with at least some of the control data in the control data

blocks (col. 4, lines 20-25 discloses phase of a pseudo random additional rotation. The additional rotation is a function of the sub carrier index k and the OFDM symbol number 1, so, here, there is convolution of real data blocks with pilot or control blocks); modulating or transforming the convoluted real data in the real data blocks with one or more sub-carrier signals (col. 4 lines 25-35 the matrix discloses the sub carrier and OFDM symbol phase of different OFDM symbols, which is for different sub carriers 1 thru N); and modulating or transforming data in the control data block with every sub-carrier that is used to modulate the real data (col. 4 lines 25-35 discloses pilot data block for each sub carrier, col. 3 lines 65-67 discloses relationship between k the pilot sub carrier and the l th OFDM symbol, so, here, each of the control or pilot phase and data phases have relationship with each other) .

Regarding claim 59, Schefer further discloses a method as claimed, wherein each of the control and real data blocks has m entries (col. 3 lines 65-67, k the pilot sub carrier in the N th symbol), where m is an integer of one or more (col. 4 lines 5-10 discloses $p(l,k)$ is the index of a pilot sub carrier in the l th symbol so has more than one entries), and m sub-carrier transmission channels are provided (col. 4 lines 5-10, discloses $p(l, k)$ so, pilot sub carriers are the sub channels), and each control data entry and each real data entry are modulated with the corresponding sub-carrier ($p(l, k)$ are modulated with the corresponding sub carrier, col. 4 lines 25-35).

Regarding claim 60, Schefer further discloses a method, wherein the step of

convoluting involves phase angle convoluting each entry in each real data block with a phase angle of the corresponding entry in the control block (col. 4 lines 10-15 discloses phase of the pilot sub carriers depends only on the sub carrier index $p(l, k)$. if an additional phase rotation is a function of the sub carrier index and ofdm symbol, so, here, convolution is there since, there is a phase relationship between each symbol and phase of the pilot subcarrier)

Regarding claim 63, Schefer further discloses a method, wherein each phase angle for the control data in the control data block is randomly assigned (col. 5 lines 20-26 discloses pilot phases are randomly chosen).

Regarding claim 64, Schefer further discloses a method, wherein each entry of the control data block has a phase angle that is a function of the phase angles of the corresponding entries of the real data blocks(col. 4 lines 10-15 discloses phase of the pilot sub carriers depends only on the sub carrier index $p(l, k)$. if an additional phase rotation is a function of the sub carrier index and OFDM symbol, so, here, convolution is there since, there is a phase relationship between each symbol and phase of the pilot sub carrier)

Regarding claim 69, Schefer further discloses a method as claimed in claim 58, wherein the step of modulating comprises frequency modulating the signal (col. 1 lines 15-20, OFDM modulation)

Regarding claim 70, A method as claimed in claim 58, comprising receiving data for transmission to a receiver, dividing the data into N-1 data blocks and embedding a the control data block into the N-1 data blocks to provide a N block data transmission (col. 5 lines 10-20, pilot arrangement within the data with different pilot phase profile, and pilot phase is dependent upon the OFDM symbol, col. 5 lines 20-26 discloses randomizing the pilots phases)

Regarding claim 73, Schefer further discloses a system for encoding data for transmission over a telecommunications network according to the method of claim 58, the system preferably being a personal mobile communications device or mobile/radio telephone or a computer with telecommunications capabilities or a digital broadcast radio or a digital television or set top box or any wireless networked device (col. 1 lines 14-18, OFDM system with DRM (digital radio mondiale) is also a radio communication system)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (*See MPEP Ch. 2141*)

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

9. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schefer

Regarding claim 61, Schefer does not explicitly disclose a method wherein the step of phase angle convoluting involves adding the phase angle of each entry of the control data block to the phase angle of the each entry of the data block. however, Scehfer discloses choosing pilot phases randomly and also discloses that the pilots phases are arranged in the information symbols, furthermore, col. 5 lines 10-20 discloses calculation rule for determining the pilot phase profile and chosen the pilot phase as a function of the sub carrier and ofdm symbol, therefore, since the ofdm symbols has pilot and data symbols, one of ordinary skilled in the art would recognized that adding the pilot phase and data phase is one way of distributing the pilot phase since pilot is a function of the OFDM symbol or information symbol, therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to add the data and pilot phase to convolute the data block the motivation is to provide accurate synchronization at the receiver side.

10. Claims 71 and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schefer in view of Jasper et al. (WO 93/09622) (hereafter Jasper)

Regarding claim 71, Schefer does not explicitly disclose a method wherein the control data block is embedded substantially in the middle of the real data blocks. However, in the same field of endeavor, Jasper teaches communication signal having a time domain pilot component in which page 10, lines 20-30 describes various pilot arrangements within information symbol. Fig. 1 describes pilot insertion process (108...110) and Fig. 4a-4d describes various pilot arrangement for sub channels 1-4 in which pilots symbols are embedded in substantially middle of the information system, therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Jasper, into the system of Schefer, as a whole, so as to insert pilots in middle in random arrangement of pilots, the motivation is to provide robust technique in a varying multipath environment (page 4, lines 15-20).

Regarding claim 72, Schefer does not explicitly disclose wherein the plurality of control data blocks are embedded within the real data blocks. However, in the same field of endeavor, Jasper, teaches communication signal having a time domain pilot component in which Figs. 4a-4g teaches various pilot arrangements within information symbol, in which Fig. 4g describes having multiple pilot symbols are embedded within the information symbol, for example, in Fig. 4g, the two pilot symbols are inserted between the data symbols, therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Jasper, into the

system of Schefer, as a whole, so as to incorporate multiple pilots within the information symbol, the motivation is to provide robust technique in a varying multipath environment (page 4, lines 15-20).

11. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schefer in view of Langberg et al. (US 5,852,850) (hereafter Langberg).

Regarding claim 74, Claim discloses all the subject matter as described in claim 58, except for the method written by a computer code embodied in a computer readable-medium and having code or instructions for carrying out the method.

However, Landberg teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-readable medium and that configures and drives any suitable digital signal processor situated in communication device. The computer readable medium is an electronic, magnetic, optical or physical device or means that can be contain or store a computer program for use by or in connection with a computer related system or method (col. 1 lines 51-65). One skilled in the art would have clearly recognized that the method of Schefer would have been implemented in software, The implemented software would perform same function of the hardware for less expense, adaptability and flexibility, therefore, it would have been obvious to one ordinary skilled in the art at the time of the invention was made to us the software as taught by Landberg in the

Schefer, in order to reduce cost and improve adaptability and flexibility of the communication system.

Allowable Subject Matter

12. Claims 62 and 65-68 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patel Dhaval whose telephone number is (571) 270-1818. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. Customer Service can be reached at (571) 272-2600. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Dhaval Patel/

Examiner, Art Unit 2611

10/28/2009

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611